

REMARKS

After the foregoing Amendment, claims 1, 3-9, 18-20, 22-29, 35-39, 41, 43-45, 47-51, and 53-66 are pending in this application. Claims 1, 24-26, 35, 37 and 39 are amended and new claims 64-66 are added. Support for the amendments can be found at Figures 4A-4C, Figures 21A-F, page 27, lines 16-18, and page 46, line 16 – page 47, line 16; and support for the new claims can be found at Figures 3B-D, and page 25, line 28 – page 27, line 15. Applicant submits that no new matter is introduced into the application by these amendments.

Claim Rejections - 35 USC § 102(b)

The Office Action rejects claims 1, 3-5, 24-29, 35, 36, 39, 41, 43-45, 47-51, and 52 as anticipated by Braun et al., Nature, February 19, 1998, vol. 391, pages 775-778 (“Braun et al.”). Claim 52 was previously canceled and the Office Action’s rejection of it is moot.

Claim 1, as amended, recites:

A system for assaying one or more targets in a sample comprising:

(a) an assay device having one or more assay sets, the assay sets comprising at least *two electrodes, a substrate, and a recognition moiety; the electrodes positioned on the substrate and separated by a gap; the recognition moiety positioned in the gap and bound to the substrate*, the recognition moiety being capable of specific binding to a component of a target selected from the group consisting of a bacterium, a virus, and a cell....

Italics added. Braun et al. does not disclose “an assay device having ... two electrodes, a substrate, and a recognition moiety; the electrodes positioned on the substrate and separated by a gap; the recognition moiety positioned in the gap and bound to the substrate.” Because Braun et al does not disclose every element of claim 1, Braun et al. cannot anticipate claim 1, or the claims that depend on it; claims 3-5, and 43-44.

Claims 24, 25, and 26 are directed to methods, and each recite the following step:

providing an assay device having one or more assay sets, the assay sets comprising at least *two electrodes, a substrate, and a recognition moiety; the electrodes positioned on the substrate and separated by a gap; the recognition moiety positioned in the gap and bound to the substrate*, the recognition moiety being capable of specific binding to a target....

Italics added. Braun et al. does not disclose “providing an assay device having ... two electrodes, a substrate, and a recognition moiety; the electrodes positioned on the substrate and separated by a gap; the recognition moiety positioned in the gap and bound to the substrate.” Because Braun et al does not disclose every element of these claims Braun et al. cannot anticipate claims 24, 25, and 26, or the claims that depend on them; claims 27-29, 39, 45, and 47-51.

Claim 35, as amended, recites:

An electronic device for determining the presence or absence of one or more targets in a sample comprising:

an integrated circuit comprising ... two electrodes, each electrode ... supported by a common substrate ... *each pair of electrodes forming part of an assay set, each assay set having a recognition moiety for binding to a component of a target ... the recognition moiety bound to the substrate and positioned between the electrodes....*

Italics added. Braun et al. does not disclose an integrated circuit comprising pairs of electrodes “supported by a common substrate ... each pair of electrodes forming part of an assay set, each assay set having a recognition moiety for binding to a component of a target ... the recognition moiety bound to the substrate and positioned between the electrodes.” Because Braun et al does not disclose every element of this claim Braun et al. cannot anticipate claim 35, or the claims that depend on it; claims 36 and 41.

Braun et al. cannot anticipate any of claims 1, 3-5, 24-29, 35, 36, 39, 41, 43-45, and 47-51 and Applicant respectfully requests withdrawal of the rejection.

Claim Rejections - 35 USC § 103(a)

The Office Action rejects claims 6-9, 18-21, and 38 as obvious over Braun et al. Claim 21 was previously canceled and the Office Action’s rejection of it is moot.

Claims 6-9, 18-21, and 38 depend on one of the claims discussed above with respect to the 102(b) rejections. As discussed immediately above, Braun et al. does not disclose every element of the base claims. Bruan et al. cannot teach or suggest every element of claims 6-9, 18-20, and 38. As a matter of law, Braun et al. cannot render these claims obvious; the *prima facie* case fails.

The Office Action also rejects claims 37 and 54 as obvious over Braun et al.

Claim 37, as amended, recites:

...electrodes of the device being formed as open ends of the conductors by openings or cut-outs in a vertical direction through the layers ...

each pair of electrodes forming part of an assay set, each assay set having a recognition moiety ... bound to one or more layer in the vertical opening or cut-out;

Braun et al. does not teach or suggest “each assay set having a recognition moiety ... bound to one or more layer in the vertical opening or cut-out”. As a matter of law, Braun et al. cannot render these claims obvious; the *prima facie* case fails.

To reject claims 6-9, 18-21, 37, 38, and 54, the Office Action relies on Official Notice that devices can allegedly comprise a plurality of binding sites. There is no indication of any unmistakable underlying technical reasoning to support the rejection. Rather, the Office Action simply states that devices with a plurality of binding sites are “well known and established in the art of biological detection (*i.e.*, Affymetrix®).” There is no indication why such an assay device is in any way related to the electrode disclosed in Braun et al. The Applicant respectfully traverses this Official Notice.

New claims

New claim 64 recites:

an assay device having one or more assay sets, the assay sets comprising at least two electrodes and a recognition moiety immobilized to one of the electrodes....

New claim 65 recites:

an assay device having one or more assay sets, the assay sets comprising at least two electrodes and a recognition moiety immobilized to each of the electrodes, each recognition moiety being an antibody capable of specific binding to an epitope of a target....

New claim 66 recites:

an assay device having one or more assay sets, the assay sets comprising at least two electrodes and a recognition moiety immobilized to each of the electrodes, each recognition moiety being a long oligonucleotide that is capable of specific binding to a short oligonucleotide such that the short oligonucleotide can link at least two of the recognition elements, the short oligonucleotide comprising a sequence of a nucleic acid from a target in the group consisting of a bacterium, a virus, and a cell, wherein the specific binding includes the sequence....

The prior art does not disclose, teach or suggest these elements.

Conclusion

If the Examiner believes that any additional matters need to be addressed in order to place this application in condition for allowance, or that a telephone interview will help to advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

Applicant: Eichen et al.
Application No.: 09/674,090

In view of the foregoing amendment and remarks, Applicant respectfully submits that the present application, including claims 1, 3-9, 18-20, 22-29, 35-39, 41, 43-45, 47-51, and 53-66, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

Eichen et al.

By /Douglas J. Bucklin/
Douglas J. Bucklin
Registration No. 51,208

Volpe and Koenig, P.C.
United Plaza, Suite 1600
30 South 17th Street
Philadelphia, PA 19103
Telephone: (215) 568-6400
Facsimile: (215) 568-6499

DJB/vag